Claims

1. A capacitor dielectric comprising a material formed from a two-component plasma reaction in a substantially air-evacuated plasma chamber, a first component of the two-component plasma reaction comprising a non-carbon containing and non-oxygenated silicon donor, and a second component of the two-component plasma reaction comprising a non-silicon containing and non-oxygenated organic precursor.

2. The capacitor dielectric of claim **1** wherein the second component of the two-component plasma reaction is selected from the group consisting of alkanes, alkenes, alkynes, phenyls and aromatic hydrocarbons.

3. The capacitor dielectric of claim **1** wherein the second component of the two-component plasma reaction is selected from the group consisting of ethylene, methane, ethane and toluene.

4. The capacitor dielectric of claim **1** wherein the first component of the two-component plasma reaction is selected from the group consisting of monosilane, disilane and dichlorsilane.

5. The capacitor dielectric of claim **4** wherein the second component of the two-component plasma reaction is selected from the group consisting of ethylene, methane, ethane and toluene.

6. The capacitor dielectric of claim **1** wherein the capacitor dielectric is photo-oxidized by exposure to a radiated electromagnetic energy in the presence of oxygen to alter the dielectric constant of the capacitor dielectric subsequent to the formation of the capacitor dielectric.

7. A capacitor comprising:

a first conductor;

a dielectric formed on the first conductor from a two-component plasma reaction in a substantially air-evacuated plasma chamber, a first component of the two-component plasma reaction comprising a non-carbon containing and non-oxygenated silicon donor, and a second component of the two-component plasma reaction comprising a non-silicon containing and non-oxygenated organic precursor; and

a second conductor formed on the dielectric.

8. The capacitor of claim 7 wherein the second component of the two-component plasma reaction is selected from the group consisting of alkanes, alkenes, alkynes, phenyls and aromatic hydrocarbons.

9. The capacitor of claim 7 wherein the second component of the two-component plasma reaction is selected from the group consisting of ethylene, methane, ethane and toluene.

10. The capacitor of claim 7 wherein the first component of the two-component plasma reaction is selected from the group consisting of monosilane disilane and dichlorsilane.

11. The capacitor of claim **10** wherein the second component of the two-component plasma reaction is selected from the group consisting of ethylene, methane, ethane and toluene.

12. The capacitor of claim 7 wherein the dielectric is photo-oxidized by exposure to a radiated electromagnetic energy in the presence of oxygen to alter the dielectric constant of the dielectric subsequent to the formation of the dielectric.

13. The capacitor of claim 7 wherein the dielectric is photo-oxidized by exposure to a radiated electromagnetic energy in the presence of oxygen to alter the dielectric constant of the dielectric when the capacitor is in an electrically active circuit.

14. An electrical filter comprising:

a one or more capacitors, an at least one of the one or more capacitors comprising:

a first conductor;

a dielectric formed on the first conductor from a two-component plasma reaction in a substantially air-evacuated plasma chamber, a first component of the two-component plasma reaction comprising a non-carbon containing and non-oxygenated silicon donor, and a second component of the two-component plasma reaction comprising a non-silicon containing and non-oxygenated organic precursor; and

a second conductor formed on the dielectric; and

a one or more inductors electrically connected to the one or more capacitors to form an electrical filter.

15. The electrical filter of claim **14** wherein an at least one of the one or more inductors comprises an on-chip spiral inductor.

16. A method of fabricating a capacitor dielectric comprising the step of forming the capacitor dielectric from a two-component plasma reaction in a substantially air-evacuated plasma chamber, a first component of the two-component plasma reaction comprising a non-carbon containing and non-oxygenated silicon donor, and a second component of the two-component plasma reaction comprising a non-silicon containing and non-oxygenated organic precursor.

17. The method of claim **16** further comprising the step of photo-oxidizing the capacitor dielectric by exposing the capacitor dielectric to radiated electromagnetic energy in the presence of oxygen subsequent to the two-component plasma reaction.

18. The method of claim **16** wherein the second component of the two-component plasma reaction is selected from the group consisting of alkanes, alkenes, alkynes, phenyls and aromatic hydrocarbons.

19. The capacitor of claim **16** wherein the second component of the two-component plasma reaction is selected from the group consisting of ethylene, methane, ethane and toluene.

20. The capacitor of claim **16** wherein the first component of the two-component plasma reaction is selected from the group consisting of monosilane disilane and dichlorsilane.